Assessing dementia: the Canadian consensus

Organizing Committee, Canadian Consensus Conference on the Assessment of Dementia

The elderly population in Canada continues to grow. In 1900 5% of Canadians were over 65 years of age. This proportion has now more than doubled, and by the turn of the century over 12% of Canadians will be elderly.[1] Although the incidence of many diseases increases with age, dementia is one of the most important conditions because it requires a disproportionate amount of medical care and caregiver support.

Since dementia primarily afflicts old people, especially those aged 85 years or more (the so-called old-old), the absolute number of such cases will continue to increase well into the middle of the next century.[2] About 10% of those over 65 years and up to 40% of those over 85 suffer from a type of dementia.[3] Thus, there are now at least 250 000 Canadians with dementia and more than 25 000 new cases annually. As the elderly population continues to grow the numbers will increase accordingly.

Although Alzheimer's disease is the most common cause there are many other conditions that can lead to dementia. Some (e.g., hypothyroidism, the toxic effects of drugs and depression) can be treated; this can alleviate or occasionally even resolve the dementia.[4,5] In many cases, even if cognition does not recover with treatment of the underlying cause, function may improve somewhat. Thus, patients with cognitive impairment should undergo appropriate assessment to determine whether any aspects of the condition can be alleviated.

There have been few soundly designed studies of the causes or reversibility of dementia and therefore no universally accepted guidelines on the exact composition of the dementia assessment. US[6] and British[7] groups have grappled with the question, but their recommendations are not always relevant to Canadian primary care physicians.

To provide sound and practical advice based on the best available evidence the Canadian Consensus Conference on the Assessment of Dementia (CCCAD), held Oct. 5 and 6, 1989, in Montreal, addressed the issue of the assessment of dementia by general physicians. The conference's mandate did not include treatment or management of dementia, because these aspects have been well reviewed elsewhere.[8-10] The supplement to this issue includes a detailed account of the proceedings, including references.

The conference convened 34 experts — 30 from Canada and 4 from the United States — representing the relevant disciplines, the media and a lay organization. The participants addressed the definition and diagnosis of dementia, the findings from history-taking and physical examination that point to the potential for reversibility, the appropriate laboratory tests and the referral to a specialist.

Definition and diagnosis

Dementia was defined as a clinical syndrome of usually progressive cognitive deterioration that eventually causes functional impairment. It develops over months or years, whereas an acute confusional state (delirium) comes on over days or weeks. Deficits occur in intelligence, memory, affect, judgement, orientation and visuospatial skills and eventu-

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ally involve all facets of cognition. For a more complete description see Tables 1 and 2 in the supplement.

Although many patients may appear to have dementia physicians must carefully rule out conditions that can mimic it: aphasia, dysarthria, psychosis, blindness, deafness and amnesia. They must also be sure to distinguish between an acute confusional state (delirium) and dementia, although the two often coexist.

History-taking and physical examination

The patient's history, including corroboration from involved family members and friends, is the most important element in diagnosing dementia and in determining potential reversibility. A brief mental status questionnaire may facilitate the assessment. The CCCAD recommends the 30-item Mini-Mental State Examination,[11] which can be completed in a few minutes, is reasonably valid and has been well studied. This examination is not a substitute for history-taking, and a low score cannot be the sole basis for diagnosing dementia. Nevertheless, it is an extremely useful and practical adjunct for the busy clinician.

Confirmation of the diagnosis of dementia should be followed by a search for the cause. Many conditions can cause dementia, but relatively few are common (Table 1).

The conference participants addressed all the common causes of dementia and assigned to them an assessment priority level based on the prevalence and potential reversibility of the condition, the availability of a suitable diagnostic test and the amount of research devoted to the condition at present. The conditions given a high or medium priority level are shown in Table 2.

Table 1: Causes of dementia*

Cause	% of patients†
Reversibility unlikely	
Alzheimer's disease	56.8
Multi-infarct dementia	13.3
Alcohol abuse	4.2
Parkinson's disease	1.2
Huntington's disease	0.9
Mixed condition (e.g., Alzheimer's disease and multi-infarct dementia)	0.8
Head trauma	0.4
Anoxia	0.2
Total	77.8
Reversibility possible	
Depression	4.5
Normal-pressure hydrocephalus	1.6
Toxic effects of a drug	1.5
Neoplasm	1.5
Metabolic disorder	1.5
Infection	0.6
Subdural hematoma	0.4
Total	11.6

*Reproduced from Clarfield[4] with modification and permission from the publisher.
†A total of 6.8% of the patients had miscellaneous causes, and 3.7% were not demented.

Laboratory tests

To diagnose the conditions correctly, relevant history-taking and a physical examination should be done; this will usually determine the appropriate laboratory investigation. Since Alzheimer's disease is by far the most common cause of dementia in community practice and since there are no laboratory tests to confirm it, an extensive set of tests is not required for most patients. Nevertheless, some people with a provisional diagnosis of Alzheimer's disease will turn out to have reversible or partly reversible dementia. Therefore, the CCCAD has made three recommendations about laboratory testing.

- Depending on the findings from history-taking and physical examination any appropriate laboratory or radiologic test can be considered.

Table 2: Assessment priority of the common causes of dementia

High priority	Medium priority
Alzheimer's disease	Arteritis
Multi-infarct dementia	Brain tumour
Normal-pressure hydrocephalus	Head trauma
Toxic effects of a drug	Sensory deprivation
Alcohol abuse	Metabolic disorders (e.g., vitamin B_{12} deficiency)
Depression	Nutritional disorders (e.g., vitamin B_1, B_6, C and folate deficiencies)
Metabolic disorders (e.g., hypothyroidism and hyperthyroidism, electrolyte imbalance, hypoglycemia and hyperglycemia, renal failure and hepatic failure)	Human immunodeficiency virus infection

• For most patients who appear clinically to have Alzheimer's disease only a basic set of laboratory tests should be ordered: complete blood count, thyroid function tests and measurement of serum electrolytes, calcium and glucose.

• In some areas of Canada many physicians experience major delays in obtaining computed tomography (CT) scans, and some generalists, such as family physicians, may not have access to the technology at all. Attending a radiologic facility may require a significant amount of travel or hardship for the patient. Furthermore, neurologic imaging is by far the most expensive element in the assessment. Therefore, a cranial CT scan is recommended if one or more of the following criteria are present: (a) age less than 60 years, (b) use of anticoagulants or history of a bleeding disorder, (c) recent head trauma, (d) history of cancer (especially in sites that metastasize to the brain), (e) unexplained neurologic symptoms (e.g., new onset of severe headache or seizures), (f) rapid (i.e., over 1 to 2 months) unexplained decline in cognition or function, (g) "short" duration of dementia (less than 2 years), (h) history of urinary incontinence and gait disorder early in the course of dementia (as may be found in normal-pressure hydrocephalus), (i) any new localizing sign (e.g., hemiparesis or Babinski's reflex) and (j) gait ataxia.

In the absence of these symptoms and signs cognitive impairment, especially if present for at least 1 to 2 years, would not likely be reversible and referral for CT scanning would not be indicated.

Referral to a specialist

Most patients with dementia can be assessed adequately by their primary care physician. However, there are several reasons to consider a referral to a geriatrician, geriatric psychiatrist or neurologist: (a) continuing uncertainty about the diagnosis after initial assessment and follow-up; (b) a request by the family or the patient for another opinion; (c) the presence of significant depression, especially if it does not respond to treatment; (d) possible industrial exposure to heavy metals; (e) the need for help in patient management (e.g., if there are behavioural problems) or support for the caregiver, who may be under stress; (f) the need to involve other health professionals (e.g., occupational therapists, social workers and neuropsychologists) in the evaluation or management; and (g) when research studies into diagnosis or treatment are being carried out.

The CCCAD suggests that patients with dementia not be referred if the dementia has been present for many years and there are no problems in management, if the patient is expected to die soon from a coexisting condition or if risky or costly interventions (e.g. neurosurgery for cerebral metastases) would be inappropriate.

The CCCAD also offered recommendations about further research, education and postmortem examination.

Patients who suffer from dementia increasingly challenge Canada's health and social services. Effective and efficient assessment is essential to help those with dementia and to ensure that our increasingly scarce health care resources are used appropriately.

Many questions remain. Carefully conceived research — basic, clinical and epidemiologic — must continue in order to deal with this growing "grey epidemic." Although the CCCAD's recommendations are based on the best available evidence they may require revision as new studies are published. Nevertheless, the advice should be of practical help to Canadian physicians, benefit patients with dementia and their families and, we hope, encourage further research.

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